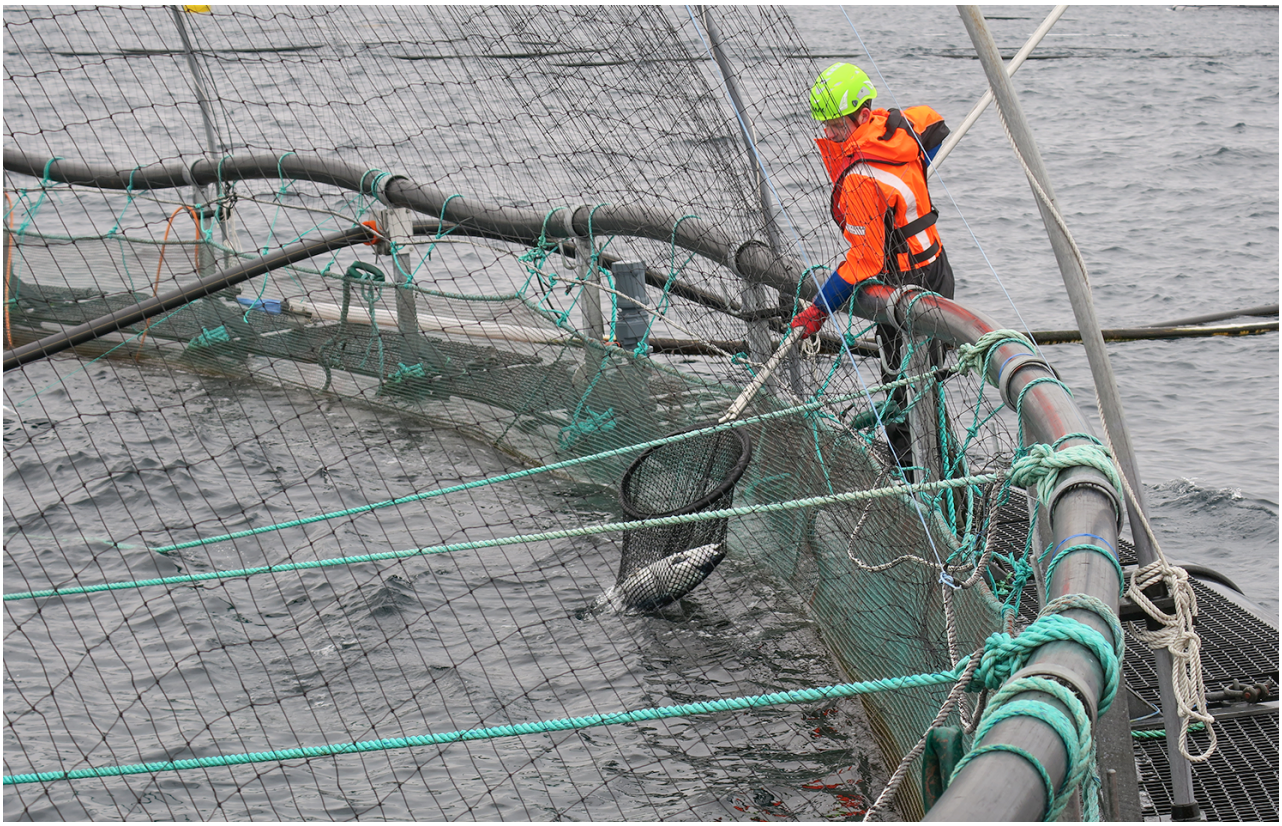
BlueEDU

Aims and Objectives

Fostering growth in the blue economy by developing an action plan for innovative European aquaculture VET and harmonised qualifications (2016-18).



Version 1.0

Target countries in the north: Norway, Iceland, Finland, UK, Denmark and Ireland

Target countries in the south: Greece, Cyprus, Croatia, Italy, Spain and France

An Erasmus+ Sector Skills Alliance
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BlueEDU scope

The overall goal is to identify skills gaps within the European aquaculture workforce, evaluate education and training demand and supply, and establish industry and education and training providers' receptiveness to innovative delivery methods.

BluEDU summary

The BlueEDU partnership has been established in response to growing concerns about the difficulties many European fish producers are facing when trying to recruit qualified staff with up to date aquaculture knowledge and skills. The skills needs and future demand for education and training will be established for cage farming operatives (husbandry and supervisor). The application of new learning and communication technologies that can improve the quality and accessibility of education and training for remote work based learners, will be demonstrated and explored.

The supply of 'formal' aquaculture education and training by the public sector and private trainers will be evaluated alongside the un-certificated short courses and in company provision which serve such a valuable role. The BlueEDU partners believe that a new working relationship between the education and training sector and industry can be catalysed, leading to a more responsive aquaculture education and training system in Europe.

Aim 1

To determine how occupations and occupational standards are defined in the 12 BlueEDU partner countries

Step 1 Investigate existing definitions of aquaculture occupations and occupational standards and their current application to education and training design

The definitions of current roles that are applicable to cage farming operatives (husbandry and supervisory) will be explored in the 12 partner countries that cage farm fish. Typically, occupational standards are defined in terms of the knowledge, skills and competences needed to undertake the specified role, whether husbandry or supervisory level. The definition of knowledge and skills is self explanatory, unlike competence, which is usually defined with reference to the level of autonomy. For example, a new entrant, once they have received initial training, may be able to demonstrate a skill under direct supervision, whereas a competent husbandry man would be expected to demonstrate the skill at all times, under a range of conditions, unsupervised. A supervisor would be expected to be able to supervise others correctly applying the skill. These are all examples of differing levels of competence.

Step 2 Establishing a new 'labour skills foresight forum'

The BlueEDU partners plan to establish a 'labour skills foresight committee' with a strong producer and supply company representation and welcome the involvement of senior managers from:

- fish producer companies responsible for Standard Operating Procedures (SOPs) and staff development,
- technology supply companies that understand the training needed to operate their equipment safely and efficiently, and,

- supply companies providing consumables (feed and health products) that understand how farm operatives can optimise these expensive inputs.7

This committee formed by the above specialists and led by education and training providers will define knowledge skills and competences in terms that can then be used to evaluate existing education and training provision, identify gaps and inform the development of new provision.

As a result, the definition of European Skills Competences and Occupations (ESCO for aquaculture can be further developed for cage farming operations. Once updated, it can support comparisons between aquaculture qualifications available in different countries in order to identify equivalencies, much more readily.

Step 3 Define Occupations and Occupational Standards for cage farming

On a fish farm, company Standard Operating Procedures (SOPs) commonly provide the definition of the standards for all important operations. Samples of company SOPs will be compared to existing National and/or European level aquaculture occupational standards, to determine how well matched they are. This will inform the development of a specific European Occupational Standards (EOS) for cage farming that are technically up to date and more closely reflect company SOPS. Subsequently, the EOS can be used to underpin revisions of National Occupational Standards (NOS) and National Qualifications (NQ) development in each cage farming country. This will help the future recognition of equivalencies between different European aquaculture qualifications in support of greater learner and labour mobility, ultimately.

Chapter 2

Aim 2

To determine the demand from industry for aquaculture education and training

Step 1 Evaluate the existing European aquaculture education and training information base

There have been a number of previous studies undertaken in the 12 partner countries to establish aquaculture skills and education and training needs. Some studies are u reliable, as they are based on low sample sizes. Others are potentially useful, but have not been published. The aim of this study is to source, evaluate and collate any existing data and survey analysis that may be useful, in order to indentify information gaps or areas of uncertainty that the subsequent BlueEDU education and training supply and demand surveys can target.

Step 2 Determine gaps in aquaculture knowledge and skills and language barriers to learning

The surveys will be designed to establish the knowledge and skills gaps that both producer companies and supply companies have observed in the aquaculture workforce at the operative level (husbandry and supervisor). It is well known that the European aquaculture workforce is increasingly diverse in terms of national origin and first language, most noticeably within the fish processing workforce. Therefore, the surveys will establish the influence that language barriers have on learning and mobility.

Step 3 Determine ICT and environmental management skills

Cage farms are increasingly 'high tech' and digital systems for cage surveillance, stock monitoring and evaluation, feeding and the assessment of fish health and production performance are commonplace. Some technology supply companies have concerns regarding underutilisation of 'high tech' equipment as farms may not be getting the best return on their capital investment. It appears that the knowledge and skills required of operators needs to be better defined, to underpin the development of effective training in

the application of digital technologies and operation of sophisticated equipment.

The knowledge and skills required to manage and mitigate the environmental impact of cage farming will be clearly defined for cage farming operatives. Environmental impact monitoring and management has many dimensions, requiring a detailed understanding of a range of factors, including; the environmental and welfare needs of the fish, the production of wastes and disease pathogens and the measures available to maintain the environmental impact of farming activities within acceptable limits.

Step 4 Establishing the type of education and training needed in the future

Aquaculture technical knowledge requirements are evolving in response to rapid technological changes making it is important to recognise the today's knowledge requirements as well as anticipate tomorrows. Therefore, an assessment of current and future knowledge requirements will be included to anticipate the impact of technological change.

Many cage farms are too remote for their staff to access a suitable education and training facility. Therefore, innovative work based learning methods are required to overcome these geographic barriers to access. There are learning and communication technologies that can support education and training delivery that could be more frequently deployed. However, it is important to establish the industry's receptiveness to these innovative approaches and the readiness of a diverse group of aquaculture learners.

Aim 3

Evaluate aquaculture education and training supply

Step 1 Mapping aquaculture courses and qualifications

All of the aquaculture qualifications relevant to cage farming operatives in the 12 BlueEDU partner countries will be evaluated regarding their content and educational level. The subject content will be compared to definitions of cage farming occupations (husbandry and supervisor) previously developed with industry involvement. The European Qualifications framework (EQF) will be used to compare the educational levels of different qualifications.

The qualifications will be organised into an Inventory, according to their EQF level, indicating the extent to which each address cage operative occupations in terms of the knowledge, skills and competences imparted. Any statutory training that cage faring operatives undertake will also be analysed using the same methodology and included in the final inventory. Any important qualification progression routes and pathways will be highlighted.

Step 2 Identify equivalencies between existing aquaculture qualifications

Based on the mapping above, equivalencies will be identified between qualifications relevant to salmon production. They will be described in terms of the knowledge, skills and competences assessed and the EQF level.

Step 3 Evaluate the capacity of education and training providers for innovative delivery

The aquaculture and education skills, experience and qualifications of all practitioners, including; teachers, lecturers, instructors and assessors, will be defined in relation to innovative work based education and training practices. Education and training providers will be encouraged to reveal partnerships with other providers and the aquaculture industry, to help identify where any existing partnerships may assist the development of a

more collaborative approach towards education and training design and development in the future.

Step 4 Evaluate education and training methods

Education and training can be provided in many different ways. Whilst effective, face to face education and training delivery is often inaccessible to work based learners and more innovative methods, often deploying learning and communication technologies, are required. Education and training providers will be encouraged to self evaluate their approaches to teaching and learning to establish their 'readiness' for the development and expansion of more innovative delivery approaches.

Step 5 Evaluate the attitudes of salmon farming and technology supply companies towards education and training and workforce development

There are a range of attitudes towards education and training with some seeing more value in National Qualifications based on occupational standards, than others. Many companies have become very reliant on 'in company' staff training to satisfy their immediate needs which do not contribute towards a National Qualification. The reasons for each companies approach to workforce development and the underlying attitudes need to be explored and understood, before a more innovative collaborative approach between education and training providers can be discussed.

Aim 4

Evaluate current approaches to the assessment within aquaculture courses

Step 1 Evaluate work based assessment practices

The existing approaches by education and training providers to the assessment of knowledge, skills and competences, need to be explored in some depth for work based learning, due to its importance.

An invigilated written assessment is seen by many as the most secure way of ensuring that the learners have the knowledge required of them. The use of learning and communication technology can potentially make the assessment process more flexible and accessible for work based learners. The same can be said of alternative assessment methods, such as problem solving activities and assignments related to real work based situations. In all cases quality assurance is essential to the safeguarding of standards

The assessment of aquaculture practical skills and competences is a very different challenge and often requires close cooperation between education and training providers and company managers, as the assessment process is often best conducted within a commercial farm environment.

Step 2 Investigate how informal prior learning can be recognised and accredited

There are great advantages to recognising the existing knowledge and skills of learners who have had some aquaculture experience, before they start their course or programme. This allows tutors to organise group or individual learning based on the results, and if embedded within a quality assured assessment process, prior learning can not only be recognised, but also accredited, thereby contributing towards the achievement of a formal qualification.

There are various associated processes and learning technologies that being deployed in different countries that will be investigated to establish how they may improve the effectiveness and efficiency of aquaculture education and training in the future.

Step 3 Investigate the regulation of education and training

The different 'regulatory environments' governing vocational education and training within the 12 BlueEDU partner countries will be explored. An understanding of their impact on vocational education and training design, development and delivery processes will be established. On the assumption that it is easier for education and training providers from similar regulatory environments to collaborate, this is likely to influence collaboration.

Step 4 Investigate the education and training quality assurance processes

The regulatory environments governing vocational education and training within the 12 BlueEDU partner countries will determine the quality assurance obligations of education and training providers. The effectiveness of different quality assurance mechanisms will be evaluated from the providers' perspective, with regard to the impact on the quality of aquaculture education and training in general, and work based learning and qualifications in particular

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